

letters

Hungarians, Czechs, and too many others.

Will a civil-defense effort impair democratic institutions? Ross, "concern(ed) that the US may be gradually developing into a military state," suggests that "civil-defense preparations could be an essential ingredient in this process." His accusation, that "Wigner does not consider the concern," ignores Wigner's discussion on page 13 of the book and takes no account of the essay by Curtis Harvey, which shows that it is Sweden and Switzerland—hardly military dictatorships—which have made the most complete civil-defense preparations.

Will civil-defense preparations increase or decrease the probability of war? Here Ross is concerned that a stronger defense may add to the "possibility that US could itself... start a nuclear war." This deep distrust of American institutions together with an equation of the US and the USSR are consistent themes in Ross' essay, exemplified by his comparison of the "secret police in the USSR and the defense department of its closely associated industries in the US." The curious disclaimer of comparison in his next sentence is a bit disingenuous for my taste.

If the character of nations, like the character of men, is seldom completely good or evil, it is foolish and dangerous to presume that there are no very important differences in the morality of governments: There is a difference between the US and the USSR.

Ross closes his review by stating that the essays are out of date, "a message from another time." I would not agree, though the review itself does give me a strange feeling of *deja vu*: I see the 1930's, the Joad resolution at Oxford that the house will not "fight for King or Country," a similar resolution by a Princeton graduating class, a strong "peace" movement—and opposition to defense.

Robert K. Adair
Yale University

Re physics freaks

Your March editorial, "Drugs versus Science," raises a good point. Drugs and science do have much in common.

I myself have taken trips of many types. One of my major trips, graduate school, culminated in a physics PhD. It was really a magnificent trip, no question about it. True, there were times when things were difficult, but overall I loved it. Exploring the relationships within our physical universe is incredibly beautiful.

I expected some benefit from this trip, mainly the opportunity to continue this

exploration. In this sense the trip turned out to be a bummer. It really hurt. I am addicted to physics. My withdrawal symptoms have been somewhat lessened by my finding a job that is enjoyable and satisfying, though not related to physics.

The shock of this withdrawal, along with some sour-grape reaction, has led me to question whether promoting or supporting addiction to physics is really helpful to our society at large. Like heroin addicts, physics addicts require large amounts of money to support their habit. It is not clear to me that the overall effect of research done by physics addicts is positive. I know that basic research is neutral, but its application is not. As long as our society is governed for and by money, rather than people, most of the fruits of research will be applied to wealthy elites, rather than the man on the street.

Physics is beautiful. Our universe provides a magnificent trip. I do not deny this, but neither do I claim that by doing basic physics we have a real chance to make things better. For a bunch of physics freaks to be giving a lecture to the drug freaks seems to be the kettle calling the pot black.

Joseph Davidson
Madison, Wisconsin

Isolated professors

After attending the APS-AAPT meeting in New York this February, seeing the placement service (having some 700 applicants and only approximately 60 job interviewers), and listening to the various sessions concerning physics manpower oversupply and future trends in graduate education, I am convinced that there is a very serious communication gap between established physicists and those unfortunate ones like myself who have been struggling to obtain a job. I feel that the lack of communication is due to the isolation of many tenured professors who foresee no personal loss to themselves in the present oversupply problem; unfortunately many of these professors still advocate recruiting ever-increasing numbers of physics graduate students on the premise that physics should be marketed to society as a whole for its general appreciation.

Being more realistic I would say wait until society demands to know more physics and not jump to the conclusion that society will relish physics if enough field workers (i.e. PhD physicists) are produced to do the missionary work. As a matter of policy, every professor who recruits a graduate student with such speculation (or any speculation concerning "good opportunities" in physics) should be willing to bet a portion of his salary (say 30%) that he

will successfully place this student in a decent physics job. If the professor loses the bet, he pays his new PhD this portion of his salary until he has successfully placed him (if ever). This may sound like a power play; however, it is more just than the present system in which the professor loses nothing (in spite of his error in advising the student to get a PhD) but the graduate student loses everything (after taking the professor's advice in good faith).

In sum, if the professor has to put his money where his mouth is, he'll be sure to do his homework before "mouthing off." By the way, any professors (which will most likely include the majority) who think the above idea is bad have automatically admitted that the job situation is serious. Any takers?

Willard G. Winn
University of Rochester

Fair-weather physicists

At the recent APS-AAPT annual meeting a lot of graduate students and new PhD's were complaining that the government owes them a living, because it had fooled them into becoming physicists by the promise of good jobs.

Physics is not a trade. It is a branch of natural philosophy. Some of us, who can't earn a living by research any more, are still very pleased that the US Government gave us the opportunity to learn physics (and free, at that). How can a person possibly object to being trained free in something he likes doing?

Perhaps the young men at the meeting weren't ever potential scientists. But why should the government be blamed for the motives of people who go into science for money?

Let these fair-weather physicists go out and earn an honest living. Any true natural philosophers among them will survive, and be welcomed as such by their colleagues. The rest will doubtless disappear from the fringes of physics.

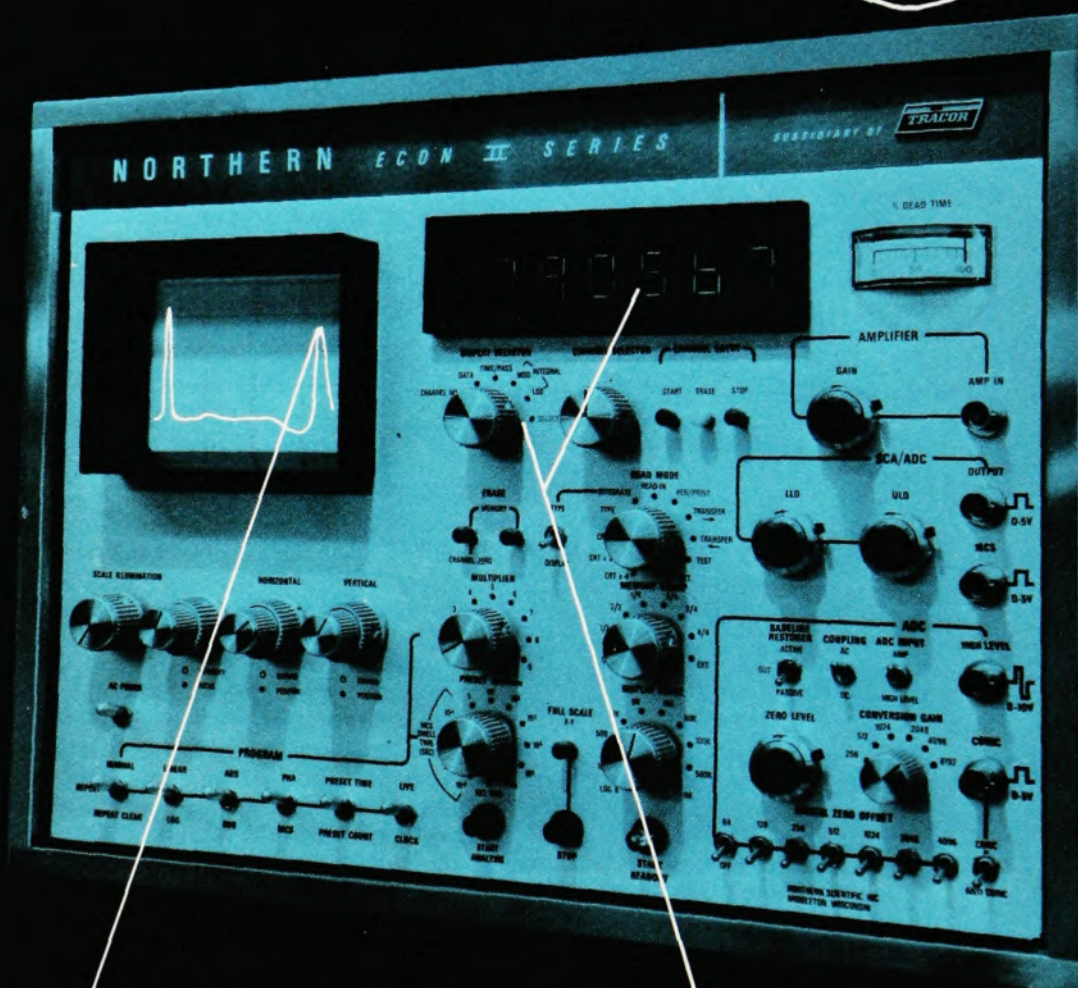
John H. Connell
Springfield Technical Community College
Springfield, Mass.

Challenge for headhunters

How sad it was to see such a pessimistic letter as that from a member of the once mighty band of head-hunters (Stuart Silverman, March 1971, page 9).

If the professional employment agencies were to regard their mission as finding jobs for physicists, then this would be a time of challenge and opportunity for them. The challenge would be all the greater since we appear to be in a class with paroled convicts, rehabilitated drug addicts, and others who encounter enormous prejudice in job hunting. Instead, the professional agencies are going out of business just

We've
designed
a **BUG**
INTO our
NS700
analyzer



The bug is round, new and unique. It shows up on the CRT as a mobile intensified channel... and moves to any selected channel when instructed. The bug, switch and six digital readout lights allow you to

- immediately identify channel number;
- display total information in any channel;
- determine counts in channel zero;
- integrate multiple groups of channels or readout selectively.

And the bug is an additional feature joining all the outstanding features for which the NS-700 is already known. The NS-700 series sets a new standard for flexibility, performance and control, all in one compact chassis.



Prices, f.o.b. Middleton, Wis. are
\$7,900 for 1024 channels,
\$9,900 for 2048 channels,
\$11,900 for 4096 channels.
Telephone or write for information today.

NORTHERN SCIENTIFIC, INC.
subsidiary of **TRACOR**
Box 66 • Middleton, Wis. 53562 • Area Code 608/836-6511

letters

when we need their help most because they limit themselves to filling jobs. The agencies represent companies rather than job seekers simply because the companies pay the agencies' fees. The difference shows up clearly in the attitude of the agency when jobs are scarce. So, if job seekers want the agency to represent them, then they must expect to pay the agency's fee directly. One suspects that they have always paid at least part of this fee indirectly, anyhow. If the agencies represented the job seekers, perhaps they would beat the bushes for jobs with the same diligence that they formerly used in contacting physicists on behalf of their client. The agencies tried to keep us moving around, forgetful of the rest of the game of musical chairs—the part where the music stops and there are fewer chairs.

If organizations such as the AIP Placement Service can revive the lost art of finding jobs for people, perhaps the professional agencies will come back to us. Meanwhile, it takes someone who knows what physicists' capabilities are to convince potential new employers that a PhD in physics is not necessarily a total loss. How did we get such a bad image anyway? Could it be that people have been listening to what we have been saying about ourselves? Maybe the public-relations expert who gave Mr Nixon his new image (and new job) will be available late next year to undo the damage for us.

Thomas R. Lawrence
Wayland, Mass.

New emblem for AIP?

John Rigden ("Reshaping the image of physics," October 1970, page 48) gives the example of a salesman thinking that physics is "A pulley and an inclined plane." If, as Rigden suggested, we want to communicate "some of the excitement, beauty and uncertainty of the subject," AIP might make a humble start by considering a change in its weight-ruler-pendulum emblem.

There is no doubt today that there is "uncertainty" in physics. The physicist is finally down to earth hustling for a job like most other wage earners.

M. W. Valenta
University of Vienna
Vienna, Austria

Rapid publication

Seymour Keller, John Hensel, Frank Stern and the AEC are to be congratulated for the speedy publication of the Proceedings of the Tenth International Conference on the Physics of Semiconductors, Cambridge, Massachusetts,

17–21 August, 1970. A time lag of less than four months between the closing of the conference and delivery of the proceedings must be some kind of record. They have established a standard against which future conferences will be measured.

J. E. Fischer
Michelson Laboratory
China Lake, California

Responses to Zernik

Wolfgang Zernik's letter "Judging the value of physics research" (December, page 9) is a good illustration of how unlikely it is that physicists are going to be able to solve their economic problems independently of the rest of society.

In demanding that the value of physics research be proved by essentially utilitarian criteria of worth to society, Zernik is asking for a standard that would be disastrous if applied to nearly any area of economic activity in the US. For the fact is that the "needs" of America in their natural state are not nearly adequate to keep any area of the economy occupied now on a full-time basis. Of course society does not "need" so much physics research, or so many automobiles, or so much air conditioning, or so much professional football! All the "needs" that keep these areas of the economy working are artificial, continually stimulated by advertising, and largely dependent upon a subjective, essentially non-economic, *sense of need* that would not exist in the absence of aggressive salesmanship.

As long as physicists, and US society in general, cling to the myth that "productivity" is the primary goal of human life, this internal contradiction will continue to haunt us. When and if US society is able to broaden its definition of the "national Welfare" to include more than economic and military components, then physicists, like other people, will have a chance to be rewarded for a day's work without feeling privately dishonest about it.

David Montgomery
The University of Iowa
Iowa City, Iowa

With reference to Wolfgang Zernik's letter I am very disappointed that any physicist would analyze the present research and funding situation and conclude that the job crisis will exist and grow worse "until the output of physicists becomes commensurate with their value." The suggestion that physics support and the GNP are unrelated is absurd. Zernik's own point that "historical development" is of critical importance itself negates his suggestion. Many examples exist in which scientific research and development has contributed to the GNP and reciprocally,

CRYOGENIC Temperature Controller



Model 5301

Accurate temperature control in Research Dewars, Cryogenic Freezers, Tensile Cryostats for physics, chemistry, metallurgy and other scientific fields where the process, temperature and/or control requirements change frequently. System features control stability better than .01°K from below 0.3° to 320°K with less than one micro-watt power dissipation in the sensor. Three mode control: Proportional, rate and reset with internal parameter controls, allowing to tune the controller to thermal characteristics of the system. 100 watts output, short circuit proof, DC for minimum interference to other low level instrumentation.

artronix
INSTRUMENTATION

716 Hanley Industrial Court, St. Louis, Mo. 63144
Area Code 314 Phone 644-2456

PROGRAMMER



Model 5350

The Model 5350 Programmer is an electro-mechanical function generator, consisting of a digitally controlled servo-system driving a 10 turn potentiometer at a wide range of sweep rates. The Programmer finds application in the process control field with other instrumentation, whose output is controlled by a resistance or resistance ratio, such as powersupplies, magnetic generators, audio or RF oscillators as well as temperature, deposition-rate, vacuum and similar controllers.

artronix
INSTRUMENTATION

716 Hanley Industrial Court, St. Louis, Mo. 63144
Area Code Phone 644-2456